

## SECTION 3 – STRANDING AND SALVAGE ACTIVITIES

SCDNR 24-hour Hotline: 1-800-922-5431

Marine Turtle Conservation Program Stranding Cell Phone: (843) 633-1639

NOAA Marine Mammal Stranding Pager: (843) 820-0612 (type in phone number after beep)

This section is specifically intended for those persons whose permit authorizes them to **conduct stranding and salvage activities**. These personnel are authorized to:

- **measure and mark dead sea turtles**
- **transport or transfer turtles carcasses, or preserved specimens within South Carolina**

This activity does not authorize personnel to conduct the following activities unless specifically stated on their permit:

- **conduct necropsies**
- **hold turtles for rehabilitation**
- **collect, store, ship or process biological sea turtle specimens for scientific/ medical purposes**
- **transport or transfer live turtles, or preserved specimens into or out of South Carolina (this activity requires a specific consent permit from SCDNR)**

This activity involves the collection of information on turtles that become stranded on land, whether dead or alive. All permit holders participating in this program are required to complete a Sea Turtle Stranding and Salvage Network (STSSN) report (found on the volunteer resources page <http://www.dnr.sc.gov/seaturtle/volres.htm> under forms) for each turtle encountered. Reports should be entered into the online stranding database (<http://www.seaturtle.org/strand/>) within **24 hours of the stranding**. The original stranding report should be mailed, emailed or faxed upon completion to South Carolina Department of Natural Resources, Marine Turtle Conservation Program Coordinator, PO Box 12559, Charleston, SC, 29422, Fax: (843) 953-9282. STSSN report forms should be requested through the State Coordinator's office or printed from the SCDNR Marine Turtle website on the volunteer resources page under forms. Please do not Xerox your own reports. If you are authorized to conduct stranding/salvage activities, you may transport stranded carcasses within the state of South Carolina. You may **not** transfer live turtles or turtle parts out of the state without prior written approval from SCDNR. To maintain consistency and data quality, only highly experienced personnel with explicit training from SCDNR should conduct STSSN activities. A permit holder may **not** authorize additional personnel to conduct STSSN activities without approval from SCDNR. Authorized personnel are individually permitted. All personnel

conducting STSSN activities shall follow these guidelines. Look for email announcements from your state coordinator concerning updates and changes.

Conducting stranding and salvage activities may also involve the collection of information on turtles that have been impacted by a human-related activity or situation but are not necessarily killed or debilitated. A STSSN report form (found on the volunteer resources page under forms) should be completed any time a turtle is captured or trapped, even if the turtle is released unharmed (the only exceptions occur when these captures or entrapments are already reported to SCDNR through other reporting forms or reporting requirements).

Please note carefully the following additional permit requirements. You can also consult Appendix C: Stranding Quick Reference Guide on the volunteer resources page.

1. A photograph is the single-most important piece of information you can generate from a stranding. Submit at least three photographs (more are preferred) of each stranded turtle online when you submit the STSSN report to SCDNR staff in Charleston. Take one close-up photograph of the turtle's head, one photograph of the dorsal surface (carapace) of the turtle, and one photograph of the ventral surface (plastron) of the turtle. Additionally, take a photograph of all injuries or entanglement gear present on the turtle.
2. Do not dispose of any turtle carcasses that have tags or tag scars. Notify SCDNR staff using contact numbers are at the beginning of this document.
3. Do not dispose of any turtle carcass that is less than 18" (45 cm) in carapace (shell) length until someone with the SCDNR staff is notified. Photographs should be taken of these smaller sea turtles.
4. Do not dispose of any Kemp's ridley, green or leatherback carcasses until someone with the SCDNR staff is notified.
5. Do not dispose of any turtle carcass that has not been positively identified to species (classified as unidentified) until someone with the SCDNR staff is notified. We may ask you to collect a skull or endoplastron bone. If you cannot identify a turtle it is imperative that photographs are taken of the sea turtle.
6. If entangling materials are found on a turtle or noted as having ingested any material, take photographs of the turtle before the entangling materials are removed and take additional photographs of the entangling material, especially of any hooks or marks on the turtle that could help identify the gear type. Do not remove any entangling materials without taking proper photographs. The entangling materials need to be sent to SCDNR.
7. Do not dispose of any fresh (no smell) carcasses without notifying the SCDNR staff. Attempts will be made to save as many of these as possible for necropsy.

8. Do not leave an unpainted turtle on the beach.
9. If the data recorder has a GPS unit, the latitude and longitude should be written in the *Stranding Location* section of the STSSN report and preferably in decimal degrees. If the form is submitted online, the map utility and coordinate conversion tool may be used to determine the correct latitude and longitude in decimal degrees.

### COMPLETING THE STSSN REPORT

The following information is provided to assist with the proper completion of the STSSN report. Permit holders conducting stranding and salvage activities should be familiar with the following information and shall complete **all** boxes on the report. Please write legibly.

**OBSERVER'S NAME/ADDRESS/PHONE:** This is the person who handles and documents the turtle in the field. It is not the person who reports the turtle to you. Please include your full **name** with middle initial if you have one. If you do not have a middle initial please enter an "X". Records are indexed by observer initials. We may need to contact you for clarification of the reported data; please give us an **affiliation** (Edisto Turtle Project, etc.) **address** and **phone number(s)** where you can be reached. Include an email if available.

**STRANDING DATE:** This is the date that the stranded turtle is first sighted. If you did not investigate until a later date, please make that known in the remarks section. **Turtle Number-by-Day:** This is used to keep track if more than one turtle is investigated on a single day, on the same beach/island, by the same stranding observer. Your first turtle of the day is 01, second of the same day is 02, third of the same day is 03, etc. Please remember to check **Notification** of the State Coordinator which must be done within 24 hours of the stranding. If the STSSN report is submitted online the state coordinator(s) will be automatically notified by e-mail when this form is submitted.

**SPECIES:** Mark the box for the **species**. The key on the back of the STSSN form can help you identify the species. There are also three additional resources to aid you with identifying a sea turtle that can be found on the volunteer resources page under training resources: SCDNR Stranded ID Guide, ID Guide for Stranded Turtles, and Seaturtle.org Sea Turtle ID Key. If you code a turtle as "unidentified" you must include a photograph, salvage the specimen, and contact SCDNR by telephone before you bury or otherwise dispose of the carcass. Take **photos** of all strandings, especially if you are unsure of the species. Photograph should be taken straight down on dorsal and ventral sides. Head shots are also most useful. If the turtle is entangled or has any injuries, take photos to document the anomalies. **Do not check whether the species was identified by the state coordinator.** This will be done by our office. Save the skull for identification if you are unsure/not certain of the species. If we cannot collect the carcass that day, pull it above the high tide line so that it will not wash away. If a turtle exhibits

characteristics of more than one species, it may be a hybrid; contact SCDNR for assistance before disposing.

Very little is known about leatherback turtles' food habits and age (size) at sexual maturity. Our staff would like to perform necropsies on as many animals as possible, even if they are not fresh. We need your cooperation for this. **Do not have the leatherback carcass buried until you have spoken with our staff.**

**SEX:** Generally, loggerheads, green turtles, and hawksbills under 90 cm carapace length and Kemp's ridleys less than 60 cm should be considered immature if a long tail is not present. Over 90 cm with a short tail should be considered female. However, sea turtles between 76 – 90 cm must include some indication as to why a particular **sex** was circled. Otherwise the sex will be considered "undetermined". If you circle male or female, please explain how you reached that decision in the next box. If a **necropsy** was performed and the sex was determined internally, check that box. You can also take photographs of the internal organs used to determine sex. You must give a measurement for the **length of the tail**. Either it extends beyond the posterior edge of the carapace or it does not. If you circle male or female and do not give a valid reason, the sex will be entered as undetermined. Measure only the tail, not the bloated or distended cloaca. Remember, immature sea turtles cannot be sexed externally!

**STRANDING LOCATION:** Indicate whether the location is **offshore** or **inshore** based off the [USCG colregs](#) or using the map utility built into the online STSSN report. Enter the **state, county** and **descriptive location** (be specific) where the stranding occurred. **Always write the name of the island or beach first.** Local names or landmarks not found on nautical charts do not help us pinpoint a location. Good reference points are inlets, county lines, state boundaries, cape points, major roads that intersect the beach, etc. An example of a good, descriptive location is: 1.5 miles north of the pier on Folly Beach. The stranding location is one of the most important data items on the report. We must be able to distinguish between offshore strandings (ocean beaches) and inshore strandings (bays/sounds/rivers). **Do not use a nest protection project's markers as landmarks.** **Latitude/Longitude** can be determined using a hand held GPS device on the beach or the online stranding database map. Decimal degrees are the preferred coordinates.

**CONDITION OF TURTLE:** Mark the **condition** of the turtle at the time it was first seen (carcasses can "ripen" quickly in summer). If the turtle seems intermediate between two stages of decomposition, pick the one that fits best. (If you specify two conditions, we will pick one, and we have never seen the turtle you are reporting.) **If it smells bad at all or has ANY odor, it is not fresh.**

0 – Alive: eye blink response; breathing (breath may be several minutes apart); may or may not be active/moving around.

1 – Fresh dead: should initially question whether it is alive; may have rigor mortis; eyes should be clear; no smell of decomposition; no evidence of bloating. **If the turtle smells at all or is bloated, it is not fresh dead.**

2 – Moderately decomposed: Mild to moderate smell of decomposition; mild to moderate bloating; bulging eyes, if present; soft tissue may feel spongy; scutes and skin may be beginning to slough.

3 – Severely decomposed: Foul smell; severe bloat or mass of rotting flesh if already de-gassed; fluids seeping through sutures; scutes and skin sloughing, or missing; bony structures may be disarticulating or protruding through the skin.

4 – Dried carcass: Completely desiccated, only dry skin and bones; little to no smell.

5 – Skeleton, bones only: Bones only with no soft tissue remaining.

**If the turtle is alive, contact your state coordinator (contact numbers at beginning of this document) immediately to arrange for transport to a rehabilitation facility. If the turtle is fresh dead, please contact your state coordinator to determine if the turtle should be salvaged for necropsy.**

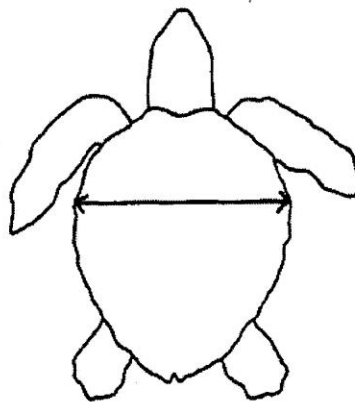
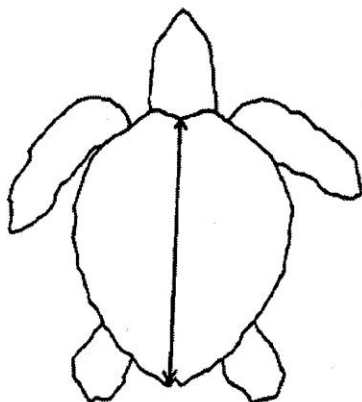
**TAGS:** Check the turtle for **tags** or indications of lost tags (tear out scars). All flippers should be thoroughly checked and the margin of the carapace should be checked as well. If you encounter a stranded turtle with a tag, you must contact SCDNR by telephone before you dispose of the animal. Researchers depend heavily on these rare events to learn important life history information about turtles. There may be something specific that needs to be done with the carcass. We may want to collect skeletal parts or the whole animal. Do not dispose of a tagged carcass until you get the okay from SCDNR. If you are instructed by SCDNR to dispose of the carcass, always remove the tags. List the tag number(s) and location (e.g., left front flipper) and return address. Enclose the tags in a padded envelope and submit them, along with the stranding report, to the State Coordinator. Notches or round holes on the trailing edge of flippers up near the shell or round holes in the edge of the shell should be noted as tag scars. Other types of tags are now included on the report. **PIT** and **wire** tags require special equipment for detection. PIT tag readers are available from SCDNR upon request. **Living tags** should be reported to SCDNR for verification. **ANY TURTLE THAT HAS ANY TAGS OR EVIDENCE OF LOST TAGS SHOULD BE SALVAGED FOR FURTHER STUDY – CONTACT YOUR STATE COORDINATOR.**

**FINAL DISPOSITION:** These codes refer to what you **did** with the stranded turtle. Even though there is a code for unpainted, left on beach (Code 5), **you should never leave a turtle unpainted on the beach.** At the very least, paint the turtle and move it out of reach of the tide. The preferred method is to paint it and then have the local sanitation department remove the carcass

or bury the turtle. Make contact with sanitation and/or security people in your area to let them know whom to contact before carcasses are removed/buried. If it is to be buried, you should locate a spot **off** the active turtle nesting beach to avoid digging into a nest. If you leave a carcass on a remote beach, you may have to repaint it as the scutes begin to fall off. Codes 1-5 refer to dead turtles only. Codes 6 and 7 are for live animals. If you use code 6 (alive, released) please say where and when you released it. If you use code 7 (alive, taken to holding facility) please note that it was given to SCDNR in the remarks section. Codes 8 and 9 are new, as is recording the paint color. If none of the **disposition** codes fit the event you are reporting, please explain what you did with the animal in the REMARKS section.

**CARAPACE MEASUREMENTS:** There are 3 **measurements over the curve** on this report. All curved measurements are taken with a flexible tape measure. Write the measurements in centimeters unless you do not have a metric tape measure. The online form will convert between centimeters and inches or the Coordinator's office will convert between centimeters and inches. Methods of obtaining standard carapace measurements are depicted on the top diagram. Please specify on the STSSN report if the measurements are taken from/to the same points as the diagram. If measurements are incomplete or cannot be taken, please give reason (damage to shell, skeleton falling apart, etc.). **Do not estimate measurements.**

## Standardized method for measuring carapace and width



### Carapace length

**Straight length (SCL)** = measured with calipers:

**Curved length (CCL)** = measured with flexible measuring tape

**NOTCH-TIP** = distance from the center of the nuchal notch to the longest tip of the posterior marginal scute.

**NOTCH-NOTCH** = distance from center of nuchal notch to posterior notch

### Carapace width

**Straight width (SCW)** = measured with calipers:

**Curved width (CCW)** = measured with flexible measuring tape

Curved width is always the widest point across the plastron perpendicular to the midline of the body running from head to tail.

**Note:** For curved measurements, lay measuring tape OVER any barnacles or other epibionts (i.e. do not go around barnacles and do not knock them off).

For leatherback turtles, lay a sufficiently long measuring tape from nuchal notch to the tapering end of the carapace (the “peduncle”), on either the left or right side of the central keel of the carapace.

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**Curved length** is taken from the center of the nuchal (where the skin attaches to the shell) to the distal point of the longest posterior marginal.

Leatherbacks only: Curved length measurements are made **alongside** the midline ridge, because of irregularities in the ridge and the difficulty of keeping the tape on the ridge.

**Minimum length** is taken at the center of the nuchal to the center of the posterior notch. Not all species or sizes of turtles will have a notch.

**Curved width** is taken at the widest point and perpendicular to the longitudinal body axis. The widest point may be forward of "halfway" down the carapace.

**REMARKS:** This is a space for description of wounds, abnormalities and your additional notes. The more information you give us, the easier it will be for us to code the record. Always note anything unusual about a stranding event. We will code these remarks onto each turtle's record. **DO NOT SPECULATE ABOUT A CAUSE OF DEATH UNLESS YOU ARE A PATHOLOGIST OR HAVE CONDUCTED A NECROPSY OF THE ANIMAL.** Use the diagram on the STSSN report to indicate flipper damage, carapace wounds, tag locations, or anything else you want us to know about the turtle. **It is also important to note if nothing was unusual. PLEASE DO NOT LEAVE THIS SECTION BLANK – NOTE IF NO WOUNDS OR ABNORMALITIES WERE FOUND.**

**SUBMITTING STSSN REPORTS:** The National Marine Fisheries Service has written a "SEA TURTLE/SHRIMP FISHERY EMERGENCY RESPONSE PLAN". The number of weekly strandings in a designated area may trigger certain law enforcement actions and restrictions to the fishery. In order to have "real time" reporting, we are asking that you submit your reports online (preferred) or telephone (843-953-9052), email ([seaturtles@dnr.sc.gov](mailto:seaturtles@dnr.sc.gov)) or fax (843-953-9282) your reports into the Charleston office within 24 hours of the stranding. The State Coordinator must provide weekly totals to NMFS.

**Please enclose the STSSN report inside an envelope for mailing.** The reports tend to tear if they are mailed by themselves. We can provide stamped self-addressed envelopes at your request. Please do not hold reports and delay mailing them, it is critical that we keep our database current. The timely submission of stranding reports makes a difference for sea turtle conservation!

#### **SUBMITTING STSSN REPORTS USING THE ONLINE STRANDING DATABASE:**

The STSSN report may be submitted online at [www.seaturtle.org/strand](http://www.seaturtle.org/strand). After submitting the report online, please mail, email or fax the original report as instructed above. The instructions above also apply to the online form because the same information is entered. The online database allows you to upload your photos online. The stranding coordinator receives a notification email once you submit your report. The online process also allows you to mark the location of your stranding using an online mapping system with a coordinate conversion utility if you collect a GPS location of the stranding. If you need to make a correction to your stranding report, you can log back into the report and make the change(s). The stranding coordinator will receive an email notification when you make changes to the stranding record.

#### **LIVE TURTLE TRANSPORT**

If you need to transport a sick or injured marine turtle, it must be shaded and otherwise protected from extremes of heat and cold (not above 90°F and not below 50°F). If a turtle is



transported at temperatures greater than or equal to 75°F, it should be cooled by keeping a wet towel on the carapace and by periodically pouring water over the head. Water and wet towels should not be used when transporting turtles at temperatures less than 75°F or at any time they are exposed to an air conditioned environment. The only exception is that any open wounds should be kept moist with clean freshwater. At temperatures less than 75°F, turtles may be kept from drying out during transport by applying a thin layer of non-petroleum jelly to the carapace and all the soft tissues (except the eyes and any open wounds). The use of non-petroleum jelly is recommended only for small turtles (juveniles). SCDNR staff will often suggest the use of towels, water, or non-petroleum jelly when making transportation arrangements for each live turtle. Any containers housing turtles during transport are to be padded and may not contain any material that could be accidentally ingested. The containers should be secured during transport such that they do not slide around or tip over. The table below provides guidance in determining which treatment is most appropriate for any live turtle needing transport.

Ambient Air Temperature around turtle	Duration of Transport (hours)	Barnacles or Other Epibiota Present on Carapace	Turtle Class Size	Recommended Treatment
75°F (or warmer)	Any	--	Any size	Wet towel or water mist
74°F (or cooler)	≥2 hours	--	Any size	dry towel
74°F (or cooler)	≥2 hours	Carapace clear	Juvenile	Non-petroleum jelly
74°F (or cooler)	≥2 hours	Carapace clear	Adult	dry towel
74°F (or cooler)	≥2 hours	heavy epibiota	Any size	dry towel

### **COLD-STUN TRANSPORT PROTOCOL**

The majority of our cold-stun activity in South Carolina comes from assisting North Carolina. South Carolina has had very few cold-stun strandings to date. Cold-stuns will start occurring when the water temperature drops below 51.8°F (11°C). For the turtle, body temperature at or below 55°F is the cutoff for normal systematic function. The core body temperature of the turtle should never increase or decrease by more than 3°F, and it is vital to never drop the temperature of a cold-stunned animal. The standard re-heat rate at the rehab facility is 5°F/day.

- If you are transporting live sea turtles, you should be able to measure the turtle's core body temperature. You can take the temperature of the turtle using a temperature gun. To use the temperature gun, dry off the surface of the neck and place the gun on the

skin in the neck region. **55°F is the cutoff temperature for normal systematic function in reptiles.**

- Keep the vehicle at ambient temperature. If you are picking up a turtle on the beach, do not turn on the heat in the vehicle. If you are picking up a cold-stunned turtle from another vehicle or rehabilitation facility, try to keep the temperature of the vehicle as close as possible (within 3° F) to the turtle's current core body temperature. Make sure to constantly monitor the temperature throughout the duration of the transport. **Do not increase/decrease the temperature by more than 3°F. Never drop the temperature of a cold-stunned animal. The standard re-heat rate at the rehab facility is 5°F/day.**
- To avoid drying out in conditions <75°F, apply a thin layer of non-petroleum jelly to the surface of the carapace and all soft tissue except for eyes and open wounds on juvenile turtles (less than 30cm CCL). Place dry towels on all turtles if <75°F. **Do not use water or wet towels in conditions <75°F, in air conditioning, or if the turtle is exposed to a draft or wind.** Be sure to keep open wounds moist with clean freshwater during the duration of transport.
- If transport travel time is more than 45 minutes, apply ophthalmic eye gel to the lower edge of the closed eye. The turtle will blink the gel onto the surface of the eye. Do not put anything into the eye unless it is specifically labeled as ophthalmic.
- When transporting a turtle in/out of the vehicle, be aware of the air temperature. All transfers of a turtle from one vehicle to another or from a vehicle to a rehab facility should be done as quickly as possible. Plan out the turtle transfer before it occurs. Back up one vehicle to the other vehicle or into the rehab facility to avoid any temperature change. At the South Carolina Aquarium, the vehicle should be backed into the facility before the turtle is removed. **Do not allow the turtle's temperature to rapidly fluctuate by more than 3°F due to outdoor air contact.**
- Make sure that all transport containers are padded, clear of any materials that may be accidentally ingested and secure before transportation begins. **Do not allow the containers to slide around or tip over during travel.**